
Non-surgical Diagnosis and Management of Chronic Ectopic: A Case Report

Marian Joy S. Santos, MD, Roan P. Salafranca, MD

Abstract

Chronic ectopic pregnancy is a rare form of ectopic gestation that contributes to the increased maternal morbidity and mortality in the first trimester of pregnancy. Diagnosis is often challenging as it presents with subtle clinical signs and symptoms, imposing the need for surgical exploration and management. This is a case of a 27-year-old gravida 3 para 2 (2002) who presented with vaginal bleeding of three weeks duration, was hemodynamically stable with unremarkable physical examination findings. The diagnosis of a chronic ectopic pregnancy was established with a conservative, non-surgical approach through the combination of clinical symptoms, transvaginal sonography, and β -hCG monitoring. Management was likewise conservative with multiple dose methotrexate chemotherapy, eventually yielding a decrease in β -hCG from 80.0 mIU/mL to 1.0 mIU/mL.

Key words: Chronic ectopic pregnancy, medical management, beta-hCG, transvaginal ultrasound

Chronic ectopic pregnancy occurs when an ectopic implantation of trophoblastic tissue causes gradual tissue destruction at the site of attachment. Repeated minor rupture and bleeding from this gestation yields chronic inflammation with the eventual formation of a hematocele or “sealed-off inflammatory mass” that contains blood, clots, and trophoblastic tissue.^{1,2} It is thought to arise from a

subclinical and self-limited hemodynamic insult in cases of tubal abortion or ruptured ectopic pregnancy.³

Chronic ectopic pregnancy is a rare condition that comprises 6% of all ectopic gestations and 1.6-2.0% of all pregnancies. As a type of ectopic pregnancy, it is included in the major causes of maternal mortality in first trimester pregnancies. It contributes to the 10-15% of all maternal deaths that are attributed to ectopic pregnancies.⁴ The increased rate of maternal morbidity and mortality from both acute and chronic ectopic pregnancies necessitates early diagnosis and appropriate management. While acute ectopic pregnancies are easily diagnosed with the triad of abdominal pain, vaginal bleeding, and amenorrhea with significantly elevated β -hCG levels, the diagnosis of chronic ectopic pregnancy is often challenging due to its nonspecific and subtle clinical signs and symptoms. These include vague abdominal/pelvic pain, vaginal bleeding, a palpable pelvic mass, abdominal distention, and a complex

Correspondence:

Marian Joy S. Santos, MD, Department of Obstetrics and Gynecology, University of the East Ramon Magsaysay Memorial Medical Center, Aurora Boulevard, Barangay Doña Imelda, Quezon City 1113; Email address: mjssantos93@gmail.com; Telephone: 0917 559 7441

Department of Obstetrics and Gynecology, University of the East Ramon Magsaysay Memorial Medical Center, Quezon City

pelvic mass on sonography.⁵ β -hCG titers are usually low or undetectable due to sparse or degenerating chorionic villi yielding decreased or defective β -hCG hormone production.⁶ In contrast to acute ectopic pregnancy, the diagnosis of chronic ectopic pregnancy is usually established after surgical exploration and histopathologic results showing degenerated trophoblastic tissue and chronic inflammatory mass formation.⁷ However, previous case reports have shown that transvaginal sonography may play a crucial role in diagnosis that would eliminate the need for surgical exploration and allow conservative medical management.²

This paper presents a conservative, nonsurgical approach in the diagnosis and management of chronic ectopic pregnancy. It aims to discuss the presentation, pathophysiology, diagnosis, and management of such cases, including surveillance and possible outcomes after completion of medical treatment.

The Case

A 27-year-old gravida 3 para 2 (2002), married, Filipino with no known comorbidities sought consult at the Emergency Room due vaginal bleeding of three weeks duration preceded by amenorrhea of three months. Vaginal bleeding began three weeks prior to admission, amounting to 3 to 4 moderately soaked pads per day with no associated symptoms such as abdominal pain. Bleeding persisted with the same amount for 3 days and then spontaneously decreased, now amounting to one minimally soaked pantyliner per day. The patient initially opted to observe the bleeding due to absence of other symptoms. One day prior to admission, vaginal bleeding increased, amounting to one moderately soaked pad. The increase in vaginal bleeding prompted consult at a private institution where a transvaginal ultrasound showed a complex left adnexal mass suggestive of ectopic gestation measuring 3.40 cm x 3.86 cm x 3.31 cm, with peripheral flow on color flow mapping and tenderness on probe manipulation. Both ovaries and uterus were normal with note of a thin endometrium. The patient was assessed as a case of ectopic pregnancy and advised admission for surgical management but opted transfer to this institution due to financial constraints.

The patient's menarche was at 13 years old followed by regular monthly cycles, lasting for 3-4 days, amounting to 3-4 moderately soaked pads per day. She

had two previous pregnancies which she delivered term via cesarean section for malpresentation and repeat. She has had no previous gynecologic diseases. Her last pap smear was done two years prior, yielding normal results. Coitarche was at 20 years old. She has had two male non-promiscuous sexual partners with no note of dyspareunia nor post-coital bleeding. Past medical and family history were unremarkable. She denied any vices such as smoking, alcohol intake, or illicit drug use.

At the Emergency Room, the patient was hemodynamically stable with no pallor and a soft, nontender abdomen. The cervix was pink and smooth with minimal bleeding. It was closed with no cervical motion tenderness; the uterus was small, and there were no adnexal masses nor tenderness. Digital rectal exam was unremarkable with no fulness in the cul-de-sac. The impression at the time was an ectopic pregnancy 15 5/7 weeks AOG by LMP, probably cornual, unruptured.

Since the patient was hemodynamically stable with no abdominal pain or tenderness, she was admitted for serial abdominal examination, a repeat transvaginal ultrasound, and baseline β -hCG determination. Transvaginal ultrasound (Figures 1-2) showed a normal sized anteverted uterus with thin endometrium. The ovaries were normal, however, medial to the left ovary was a complex adnexal mass measuring 3.55 cm x 3.07 cm x 4.29 cm (equivalent to 24.50 mL) which seemed adherent to the left side of the uterus. There was moderate vascular flow on color mapping with no tenderness on probe manipulation. The consideration was a cornual pregnancy versus a chronic ectopic pregnancy. Baseline serum β -hCG was only slightly elevated at 80.9 mIU/mL. Serial abdominal examination every 4 hours was unremarkable.

Given that the patient was hemodynamically stable with absence of abdominal pain or tenderness, and only slight elevation in β -hCG, the patient was not a candidate for surgical management despite the presence of a complex adnexal mass. She was managed medically with methotrexate, given at 1 mg/kg/day intramuscularly on days 1, 3, 5, and 7, alternating with leucovorin 0.1 mg/kg/day intramuscularly on days 2, 4, 6, and 8. β -hCG was monitored 48 hours after each methotrexate dose. A decline of at least 15% from the previous β -hCG value was indicative of successful medical management. The patient

had a decrease from 80.9 mIU/mL to 32 mIU/mL after completion of 4 methotrexate doses (Table 1). During medical management, the patient remained hemodynamically stable with no abdominal pain or tenderness, and minimal spotting. After completion of methotrexate doses, a repeat transvaginal ultrasound showed a slight increase in the size of the complex mass, now measuring 4.04 cm x 3.96 cm x 3.58 cm (volume of 30.67 mL). However, given that the patient

was stable with no subjective complaints and an adequately decreasing trend in β -hCG, she was sent home with advice to watch out for abdominal pain and vaginal bleeding. She was still advised regarding the possibility of surgical management if with occurrence of abdominal pain or tenderness.

After discharge, the patient was stable with no subjective complaints. Vaginal spotting had completely resolved. She was maintained on contraceptives (depot medroxyprogesterone acetate 150 mg IM every 3 months) while monitoring for the decline in β -hCG. Monitoring was done weekly until with a normal result of less than 5 mIU/mL was achieved. Three weeks after completion of methotrexate doses, the patient's β -hCG had normalized to 3.92 mIU/mL. Repeat transvaginal ultrasound revealed a decrease in size of the complex left adnexal mass to 3.31 cm x 3.49 cm x 4.00 cm (volume of 24.25 mL), still with moderate vascular flow on color mapping and no tenderness on probe manipulation (Figures 3-4). Normal β -hCG levels were then maintained after two weeks with β -hCG of 1 mIU/mL.

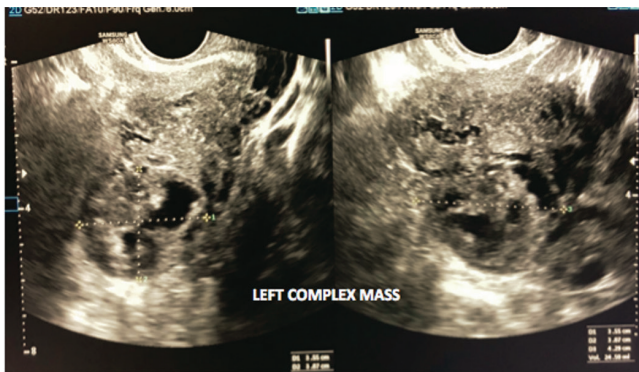


Figure 1. Initial transvaginal ultrasound showing a complex mass 3.55 cm x 3.07 cm x 4.29 cm (vol 24.50mL) medial to the left ovary which seems adherent to the left side of the uterus

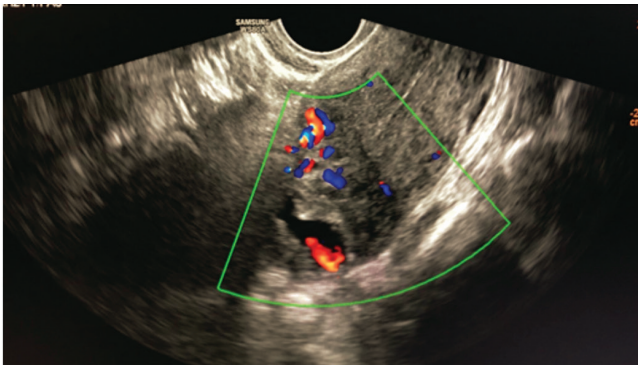


Figure 2. Initial transvaginal ultrasound showing moderate color doppler flow in the left complex adnexal mass

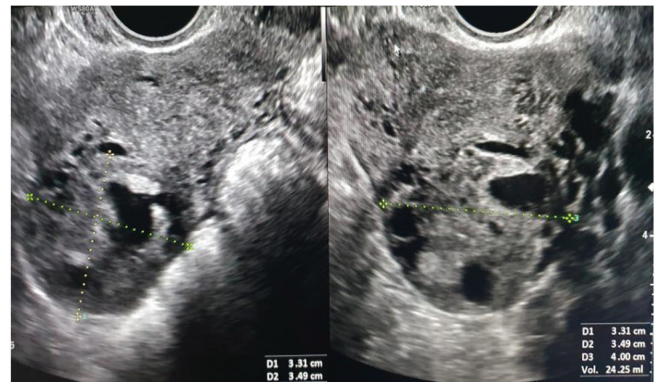


Figure 3. Follow-up transvaginal ultrasound 3 weeks post methotrexate therapy showing a complex mass 3.31 cm x 3.49 cm x 4.00 cm (vol 24.25 mL) medial to the left ovary which seems adherent to the left side of the uterus.

Table 1. β -hCG monitoring.

	08/17 Baseline	08/19	08/21	8/23	08/25	09/01	09/08	09/15	09/29
β -hCG (mIU/mL)	80.9	56.3	53.3	41.5	32	6.40	9.98	3.92	1.00
% decrease		30.4	5.3	22.18	22.9	80	-55.9	60.7	74.5

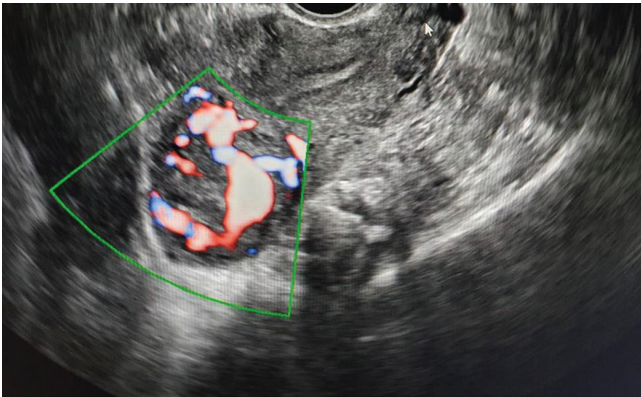


Figure 4. Follow-up transvaginal ultrasound 3 weeks post methotrexate therapy showing moderate color doppler flow in left complex adnexal mass

Discussion

Chronic ectopic pregnancy is a rare type of gestation that involves repeated ruptures and hemorrhage from a single tubal pregnancy. This causes gradual disintegration of the tubal wall followed by the formation of a pelvic mass or hematocele.¹ Its presentation is often nonspecific, including vague abdominal/pelvic pain, vaginal bleeding, a palpable pelvic mass, abdominal distention, and a complex pelvic mass on sonography. The patient only developed intermittent vaginal bleeding with no associated symptoms. While surgical exploration with histopathologic testing is the definitive means of diagnosing chronic ectopic pregnancy, the diagnosis of the patient was made with a conservative, non-surgical approach by considering her clinical presentation, transvaginal sonography findings, and serum β -hCG titers.

Sonographic findings in chronic ectopic pregnancy may vary between an amorphous avascular adnexal mass to a highly vascular complex mass. Doppler flow may be evident in the periphery of the mass with abnormal vessels and arteriovenous shunting.² While chronic ectopic pregnancy involves degeneration of the conceptus with a resultant decline in blood flow, it is followed by a prolonged process of adhesion formation that would form a conglomerate yielding the final form of chronic ectopic pregnancy. This occurs with gradual fibrin deposition and angiogenesis, hence the appearance of doppler flow.³ In the case, the patient was noted to have a complex mass with moderate vascular flow representative of

a conglomerate of the ectopic gestation accompanied by peripheral angiogenesis.

In addition to sonographic findings discussed above, chronic ectopic pregnancy presents with low or undetectable levels of β -hCG that is attributable to the sparse chorionic villi that produce the hormone. Previous studies have shown that 8% of chronic ectopic pregnancies have undetectable serum β -hCG titers, and this may be caused by 1) trophoblastic degeneration and resultant discontinuance of hormone production, 2) a very small mass of villi producing the hormone, 3) defective biosynthesis of β -hCG, or 4) enhanced circulatory clearance of the hormone.⁶ These theories support the low baseline β -hCG of 80.9 mIU/mL at 15 5/7 weeks AOG by LMP, far from the expected levels of a normal intrauterine gestation of 13,000 – 254,000 mIU/mL.

The combination of the patient's clinical presentation, transvaginal sonography findings, and β -hCG level were crucial in establishing the diagnosis of chronic ectopic pregnancy. Once the diagnosis is made, management may be either medical or surgical. Studies have shown that chronic ectopic pregnancy can be treated successfully with methotrexate with minimal side effects. Similar to the medical management of acute ectopic pregnancy, methotrexate may be given as a single-dose, two-doses, or multiple doses. The multiple dose regimen, which was done in this case, is given in combination with leucovorin to avoid adverse effects such as stomatitis and sore throat. This mode of treatment has an overall success rate of 92.7% in contrast to 88.1% for single-dose treatment. A decline by 15% in β -hCG after each dose of methotrexate is considered successful treatment. After completion of methotrexate doses, repeat β -hCG had decreased from 80.9 mIU/mL to 32 mIU/mL, with the decline after each dose ranging from 5.3-30.4% (Table 1). Given the steady decline in β -hCG and her stable clinical presentation, the patient was sent home with advice for serial β -hCG monitoring. This was done weekly until the normal range for a nonpregnant woman (0-5 mIU/mL) was achieved three weeks post-completion of methotrexate (3.92 mIU/mL) as seen in Figure 5.1 The patient was also started on contraceptives (depot medroxyprogesterone acetate 150 mg IM every 3 months) to avoid a succeeding pregnancy that would increase the β -hCG and mask the steady decline and resolution after medical management. After completion of medical management, repeat

transvaginal sonography may show a lag from the resolution of β -hCG levels. There may be note of an increase in size and vascularity of the adnexal mass, as seen in the patient, which may denote a healing process.⁴

Despite a seemingly successful medical management, it is still crucial to be wary of an acute rupture. If with onset of severe abdominal pain or recurrence of moderate to profuse bleeding, surgical management may be warranted.²

Conclusion

Although rare, chronic ectopic pregnancy imposes a high risk of maternal morbidity and mortality during the first trimester of pregnancy, hence the need for early diagnosis and management. While this remains to be a challenge due to its subtle and nonspecific clinical signs and symptoms, the diagnosis may be made via sonography and β -hCG monitoring without the need for surgical exploration. Once diagnosed, medical management with methotrexate may be done. Despite seemingly successful medical management, however, one should still be cautious of the possible need for surgical management should the patient present with acute abdominal pain or hemodynamic instability.

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